

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/849,734	05/04/2001	G. Glenn Henry	CNTR: 2023	8086
23669	7590	08/13/2004	EXAMINER	
HUFFMAN LAW GROUP, P.C. 1832 N. CASCADE AVE. COLORADO SPRINGS, CO 80907-7449			TSAI, HENRY	
			ART UNIT	PAPER NUMBER
			2183	

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/849,734	Applicant(s) HENRY ET AL.	
	Examiner Henry W.H. Tsai	Art Unit 2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- ✓ Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-36, and 40-45 is/are allowed.
- 6) ☒ Claim(s) 37-39 is/are rejected.
- 7) ☐ Claim(s) is/are objected to.
- 8) ☐ Claim(s) are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. .
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. <u> </u> |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u> </u> | 6) <input type="checkbox"/> Other: <u> </u> |

Art Unit: 2183

DETAILED ACTION

Claim Objections

1. Claims 37-39 are objected to because of the following informalities:

In claim 37, line 9, "preformed" should read ~~performed~~.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 37-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Emma et al. (U.S. Patent No. 5,353,421), hereafter referred to as Emma et al./421.

Referring to claim 37, Emma et al./421 discloses, as claimed, a method for speculatively branching in a microprocessor (see fig. 10), the method comprising: generating a plurality of speculative branch direction predictions of an instruction (fig. 11 shows that in response to a single instruction fetch, a plurality of speculative branch direction predictions indicated by the 'T' entries in the BHT's

Art Unit: 2183

segment-entry information are generated); selecting one of said plurality of speculative branch direction predictions as a final direction prediction (fig. 11 shows that a single direction is selected among the plurality by the select logic and select gates); and speculatively branching the microprocessor if said final direction prediction indicates said instruction will be taken (col. 12, lines 6-8 indicate that if the prediction is to take to branch, fetch the target address of the branch. As this prediction is during instruction-fetch time, the branching is speculative); wherein said generating, said selecting, and said speculatively branching are preformed prior to decoding said instruction (see col. 5, lines 30-32 and col. 12, lines 6-8).

As to claim 38, Emma et al./421 also discloses: detecting (that) said final direction erroneously indicated said instruction will be taken subsequent to said speculatively branching (see col. 8, lines 61-63).

As to claim 39, Emma et al./421 also discloses: branching to a correct target address in response to said detecting (col. 8, lines 65-68, col. 9, lines 1-2 indicate that the processor is restarted when a misprediction is detected. Although not explicitly mentioned, branching to the correct target address calculated at the execution stage is required in order to restart the processing).

Allowable Subject Matter

3. Claims 1-36, and 40-45 are allowed.

4. The following is a statement of reasons for the indication of allowable subject matter: Examiner agrees with Applicants that Emma et al./421 does not teach a selector for selecting one of first and second predictors based on a fetch address (in claim 1); Black's fetch address multiplexer does not select a direction prediction, but instead selects a next fetch address from one of multiple addresses, such as a branch target address provided by the BTAC or by the decode prediction logic (in claim 12); Black'723 (U.S. Patent No. 5,761,723) does not teach control logic for causing a microprocessor to speculatively branch, prior to decode of the branch instruction, if one of the first and second predictions selected by the selector predicts that the branch instruction will be taken as recited in amended claim 23; and the BHT history state and the DECODE CORRECTION signal (in Black'723 reference) cannot both be the first prediction recited in claim 40 and neither the BHT history state nor the DECODE CORRECTION signal satisfy the required the limitations recited in claim 40.

Response to Arguments

5. Applicant's arguments filed 6/1/04 have been fully considered but they are not deemed to be persuasive.

Applicant argues that Applicant can find no teaching in Emma et al./421 of generating a plurality of speculative branch direction predictions of an instruction prior to decoding the instruction, as recited by claim 37. Examiner disagrees with Applicants. As set forth in the art rejections to claims 37-39 above, Emma et al./421 discloses the step of: generating a plurality of speculative branch direction predictions of an instruction (fig. 11 shows that in response to a single instruction fetch, a plurality of speculative branch direction predictions indicated by the 'T' entries in the BHT's segment-entry information are generated) wherein said generating, said selecting, and said speculatively branching are preformed prior to decoding said instruction (see col. 5, lines 30-32 and col. 12, lines 6-8).

Emma et al./421 clearly anticipates the claimed invention.

Art Unit: 2183

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

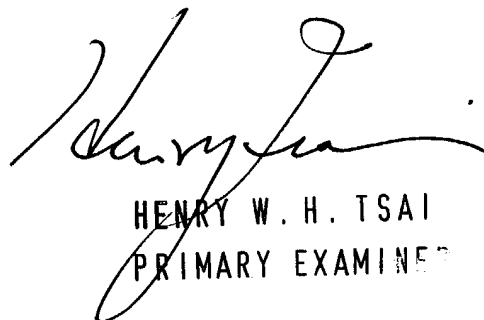
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Henry Tsai whose telephone number is (703) 308-7600. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner supervisor, Eddie Chan, can be reached on (703)

Art Unit: 2183

305-9712. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 receptionist whose telephone number is (703) 305-3900.

8. In order to reduce pendency and avoid potential delays, Group 2100 is encouraging FAXing of responses to Office actions directly into **the Group at fax number: 703-872-9306.**

This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2100 will be promptly forward to the examiner.



HENRY W. H. TSAI
PRIMARY EXAMINER

August 8, 2004